

Philanthaxoides gallicus gen. nov., sp. nov. from the Lowermost Eocene French amber (Coleoptera: Buprestidae)

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Abstract. *Philanthaxoides gallicus* gen. nov., sp. nov. from the Lowermost Eocene French amber is described, illustrated and compared with the extant and related fossil taxa. This new taxon strongly resembles extant species of the genus *Philanthaxia* Deyrolle, 1864 (Thomasetiini Bellamy, 1987) except for one but crucial morphological character: the frontoclypeus is not widened laterally as in all genera of Thomasetiini but is rather narrow with the subparallel lateral margins as in *Anthaxiini* Gory & Laporte de Castelnau, 1839.

Taxonomy. Coleoptera, Buprestidae, *Philanthaxoides gallicus* gen. nov., sp. nov., fossil, Eocene, France

Introduction

The family Buprestidae had a rather early appearance in the palaeontological chronicle (Batian of the Middle Jurassic), the subfamily Buprestinae (including both tribes Thomasetiini Bellamy, 1987 and Anthaxiini Gory & Laporte de Castelnau, 1839) has not been recorded as present earlier than the Palaeocene: Star-Staratschin and Menat (Paleocene); London Clay (Upper Paleocene-Lower Eocene); Geiseltal, Messel and Brunstatt (Middle Eocene); Baltic amber (Upper Eocene); Florissant (Lower Oligocene); Sieblos (Middle Oligocene); Salzhauzen (Upper Oligocene); Perekishkyul' (Oligocene); Dominican amber (Upper Oligocene-Miocene); Siebengebirge (Lower Miocene); Shanwang basin (Lower-Middle Miocene); Oeningen (Upper Miocene) (Haupt, 1950, 1956; Birket-Smith, 1977; Weidlich, 1987; Wedmann & Hürschemeyer, 1994; Alexeev, 1996; Bellamy, 1999; Ponomarenko & Kirejtshuk, 2007 etc.).

In France there are many places where amber of different ages was deposited (Lacroix, 1910; Schlüter, 1978 etc.). Since 1996 a great number of amber inclusions have been obtained in the outcrop with the Lowermost Eocene sediments in the Oise Department and recently these inclusions have begun to be investigated by specialists on different groups of animals and plants (Nel et al., 2004 etc.), including Coleoptera (Batelka et al. 2006; Kirejtshuk & Nel, in press; Kirejtshuk, Nel & Collomb, in press). The crucial differences of this source from Baltic amber are age and the group of resin-producing plants. The deposit age of "French" amber in Oise falls on the end of the "thermoera", while Baltic amber more or less coincides with the beginning of the "crioera". The infrared spectrum of "French" amber is rather similar to the recent *Hymenaea* Linnaeus, 1759 (Caesalpinaceae) copal (Nel et al., 2004), while the resin for Baltic amber seemed to be produced by coniferous plants. This chemical difference can have a crucial importance for the composition of the entomofauna (Nel & Bourguet, 2006).

The discovery of this enigmatic fossil buprestid allow us to describe it as a new genus and species.

***Philanthaxoides* gen. nov.**

(Figs 1-4, 6-9)

Type species: *Philanthaxoides gallicus* sp. nov. (present designation).

Description. Body short, robust, wedge-shaped and asetose (Figs 1, 6); head strongly convex, slightly wider than anterior pronotal margin; vertex convex, about five times as wide as width of eye; eyes small, elliptical, very slightly projecting beyond outline of head; sculpture of frons and vertex consisting of deep, dense, simple and rounded punctures; frontoclypeus (Fig. 4) narrow, nearly parallel-sided, anterior margin only weakly emarginate.

Pronotum short, subcylindrical, regularly convex, slightly enlarged posteriorly; pronotal sculpture consisting of nearly regular, polygonal cells without central grains (Figs 2, 9); both anterior and posterior pronotal margins more or less bisinuous. Scutellum very small, slightly cordiform.

Elytra short, only 1.6 times as long as wide, wedge-shaped, each elytron separately and broadly rounded apically (Figs 1, 6); elytra with rather rough, grainy sculpture, each elytron with eight very indistinct striae; humeral swellings well-developed; anterior, transverse depression rudimental and very short; elytral epipleura developed only on subhumeral part of elytra (Fig. 8).

Underside with regular, polygonal cells, lustrous; anal ventrite simply rounded without any lateral serration. Legs short, not modified, tarsi relatively short, claws simple, slightly hook-shaped (Fig. 3).

Etymology. The genus name *Philanthaxoides* (masculine in gender) is derived from the genus name *Philanthaxia* Deyrolle, 1864 to stress the similarity of both taxa.

Differential diagnosis. As mentioned above, the genus *Philanthaxoides* gen. nov. strongly resembles extant species of the genus *Philanthaxia* (Thomassetiini). The shape of head and pronotum, sculpture of the whole body, shape of anal ventrite and claws together with the form of scutellum, epipleura, frontoclypeal suture and eyes indicate the close relationship with the genus *Philanthaxia*. Of course, the form of frontoclypeus corresponds well with the situation in the genus *Anthaxia* Eschscholtz, 1829 (Anthaxiini) and not in Thomassetiini (Fig. 5). The strongly wedge-shaped elytra with only a rudimentary transverse, basal depression differentiate this new genus from both *Philanthaxia* and *Anthaxia*. In this situation the tribal placement of *Philanthaxoides* gen. nov. is uncertain. Due to the whole set of characters which are shared with *Philanthaxia* we are inclined to attribute *Philanthaxoides* gen. nov. to Thomassetiini more likely than to Anthaxiini.

***Philanthaxoides gallicus* sp. nov.**

(Figs 1-4, 6-9)

Type locality: North France, Oise Department, region of Creil, Chevière, Farm Le Quesnoy.

Type material. **Holotype** (sex unknown): "Farm Le Quesnoy, Chevière, region of Creil, Oise Department" (deposited in the Muséum national d'Histoire Naturelle, Paris).

Type strata: Lowermost Eocene, in amber, circa 53 Myr, Sparnacius, level MP7 of the mammal fauna of Dormaal (Nel et al., 2004).

Description of holotype. Black, short, convex and rather stout, wedge-shaped species without traces of dorsal pubescence (Figs 1, 6).

Head (Fig. 7) large, somewhat wider than pronotum; frons regularly and moderately convex, vertex slightly convex, 5 times as wide as width of eye; eyes relatively small, nearly regularly elliptical and only indistinctly projecting beyond outline of head; frontoclypeus narrow, feebly incurved anteriorly, separated from frons by shallow, transverse depression, with nearly subparallel lateral sides (Fig. 4); antennae not preserved; sculpture of head consisting of small, very dense, polygonal or rounded cells without central grains (Fig. 7).

Pronotum 1.5 times as wide as long, moderately convex, slightly flattened medially, somewhat conical, without any traces of laterobasal depressions; maximum pronotal width at the base; anterior pronotal margin with wide but only slightly projecting medial lobe, posterior margin rather deeply bisinuate; lateral pronotal margins straight, posterior pronotal angles sharp; lateral pronotal carina slightly S-shaped reaching hardly the first third of pronotal length; pronotal sculpture homogenous, consisting of small, regular and very dense polygonal cells with flat and lustrous bottoms and without central grains (Figs 2, 9). Scutellum small, subcordiform, slightly longer than wide, microsculptured and slightly depressed medially.

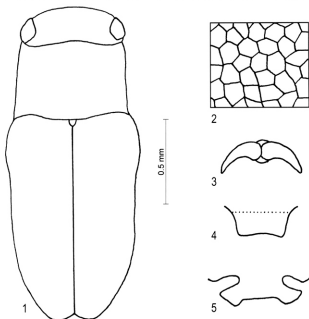
Elytra short, rather convex, only 1.6 times as long as wide at humeral part, widely and roundly wedge-shaped (Figs 1, 6); humeral swellings small but well-developed, transverse, basal elytral depression very short, developed only anteriorly of humeral swellings; each elytron very obtusely, separately rounded without lateral serration; elytral striae (eight on each elytron) very fine and shallow, nearly indistinct but reaching elytral apex; elytral epipleura very narrow, far not reaching elytral apex, well-developed only on subhumeral part of elytra (Fig. 8); elytral sculpture consisting of rather rough and dense grains with traces of fine and shallow ocellation on basal part of elytra.

Ventral side rather lustrous, sternal part with ocellation similar to that on pronotum, ventrites with less distinct, somewhat tile-shaped ocellation; anal ventrite narrowly rounded apically without any lateral serration; prosternal process not visible, covered by legs and small pieces of detritus; legs relatively short, hind tibiae not modified; mesotarsi as long as mesotibiae, metatarsi distinctly shorter than metatibiae; all tarsomeres 2-3 with adhesive pads, tarsomere 1 of meso- and metatarsi with a row of short, brush-like bristles which indicate that the studied specimen is a male; claws slender and hook-shaped, only slightly enlarged at base (Fig. 3).

Length 6.0 mm, width 2.7 mm.

Etymology. The species name is derived from the historical, Romanic name of the contemporary France territory "Gallia" to stress the origin of the species.

Differential diagnosis. Apart from the shape of frontoclypeus (Figs 4-5) and strongly wedge-shaped elytra (Fig. 1), *Philanthaxoides gallicus* gen. nov., sp. nov. strongly resembles some extant species of the genus *Philanthaxia* from the group with narrow scutellum, simple claws and homogenous pronotal sculpture [see the revisions of the genus (Bílý, 1993, 1997b, 2004)]. It is nearly impossible to compare *Philanthaxoides gallicus* gen. nov., sp. nov. with any fossil representative of Thomassetiini because the only known fossil species was described from a single elytron and its generic attribution is uncertain (see comment below). The only character which is shared with the tribe Anthaxiini is the shape of frontoclypeus (Figs 4, 7), the remaining characters correspond with those in Thomassetiini.



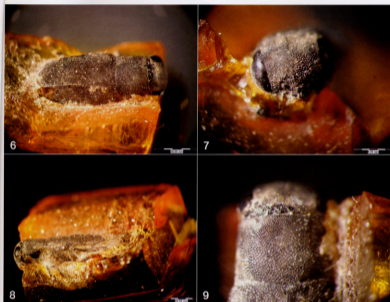
Figs 1-5. 1-4: *Philanthaxoides gallicus* gen. nov., sp. nov. 1 – body shape, holotype, 6.0 mm; 2 – sculpture of prothorax; 3 – claws; 4 – frontoclypeus. 5 – *Philanthaxia dorsalis* Waterhouse, frontoclypeus.

Discussion

Philanthaxoides gallicus gen. nov., sp. nov. strongly resembles extant species of the genus *Philanthaxia* Deyrolle, 1864 (Thomassetiini) except for one but crucial morphological character: the frontoclypeus is not widened laterally as in all genera of Thomassetiini but is rather narrow with the subparallel lateral margins as in Anthaxiini Gory & Laporte de Castelnau, 1839. This was the main reason for the creation of a new genus for this perfectly preserved fossil buprestid.

The extant species of the genus *Philanthaxia* are distributed in the Oriental (Indo-Malayan) region and two recently described species reach the Australian region [Indonesia: Maluku and Papua Archipelago (Bílý 2001, 2006)]. The genus *Anthaxia* has the worldwide distribution except for the Australian region (Bílý, 1997a).

The fossil representative of the tribe Thomassetiini was recorded by Haupt (1950) as *Stizonotus immaculata* Haupt, 1950 and later transferred by Weidlich (1987) to the genus *Philanthaxia*. This taxon was described from only one well-preserved elytron and its generic attribution is still unclear; the shape and sculpture of the elytron correspond well with that in *Philanthaxia* but this is not enough for the precise generic attribution of this species (see the combination of tribal characters in *Philanthaxoides* gen. nov.).



Figs 6-9. *Phylanthaxoides gallicus* gen. nov., sp. nov., holotype, 6.0 mm. 6 – dorsal view; 7 – head, frontal view; 8 – lateral view; 9 – pronotal sculpture.

Fossil *Anthaxia* species were recorded from Eocene deposits by Pongrácz (1935), Haupt (1950, 1956) and Weidlich (1987). All species described by Haupt were described in the genus *Eoanthaxites* Haupt, 1950 and *Anthaxia carniolica* (Pongrácz, 1935) in the genus *Coraebus* Gory & Laporte de Castelnau, 1839. All these species were revised by Weidlich (1987) and attributed to the genus *Anthaxia* together with a newly described species, *A. geiseltalensis* Weidlich, 1987; the genus *Eoanthaxites* was synonymised with *Anthaxia* by Weidlich (1987).

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